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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
YANG, RYAN R	

ART UNIT	PAPER NUMBER
2672	32

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/437,205	MACINNIS ET AL.
	Examiner	**Art Unit**
	Ryan R Yang	2672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2004* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23 and 25-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23 and 25-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *31* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. This action is responsive to communications: Amendment, filed on 3/19/2004. This action is final.

2. Claims 1-23 and 25-41 are pending in this application. Claims 1, 7-8, 21-23, 27-28 and 41 are independent claims. In the Amendment, filed on 3/19/2004, claims 1, 7, 8, 21, 23 and 40.

3. This application claims provisional application no. 60/107,875 filed on 11/09/1998.

4. The present title of the invention is "Graphics Display System With Anti-Aliased Text and Graphics Feature" as filed originally.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 6, 9-10, 12-13, 23, 25-26, 29-30 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering (6,466,206) and further in view of Harrington et al. (5,701,365).

As per claim 1, Deering discloses a method of displaying a graphical element comprising the steps of:

filtering the graphical element with a low pass filter to generate a multi-level value per pixel at an intended final display resolution ("Sample-to-pixel calculation units 170A-D are configured to read selected samples from sample memories 160A-N and then perform a convolution (e.g., a filtering and weighting function or a low pass filter) on the

samples to generate the output pixel values which are output to DACs 178A-B. The sample-to-pixel calculation units 170A-D may be programmable to allow them to perform different filter functions at different times, depending upon the type of output desired", column 13, line 53-61);

reducing a gray level of the multi-level values by at least one bit prior to using them as alpha blend values ("By calculating more samples than pixels (i.e., super-sampling), a more detailed image is calculated than can be displayed on the display device. For example, a graphics system may calculate four samples for each pixel to be output to the display device. After the samples are calculated, they are then combined or filtered to form the pixels that are stored in the frame buffer and then conveyed to the display device", column 3, line 20-27); and

using the multi-level values as alpha blend values for the graphical element in a subsequent compositing stage ("by sample-to-pixel calculation units 170A-D. An alpha value may be generated that can be used to blend the current sample into the sample buffer", column 33, line 20-22),

wherein generation of the multi-level values do not depend on alpha blend values that existed prior to filtering (since the alpha values generated is the result of sampling, it is different from the alpha blend values existed prior filtering).

Deering discloses a method of displaying a graphical element. It is noted Deering does not explicitly disclose reducing "a gray level of the multi-level values", however, this is known in the art as taught by Harrington et al., hereinafter Harrington. Harrington discloses a method of anti-aliasing in which "1) expanding gray mask M to a bitmap m

... 6) filtering those pixels in B and returning the filtered pixels to A" (column 3, line 46-55).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Harrington to Deering because Deering discloses a method of displaying a graphical element and Harrington discloses the resolution of the gray level mask can be increased, filtered, then reduced in order to achieve anti-aliasing effect.

8. As per claim 6, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 1, supra, and Deering further discloses wherein the low pass filter is a box filter (column 23, line 47).

9. As per claim 9, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 1, supra, and Deering further discloses the alpha blend values include CLUT indexes, each CLUT index is associated with a CLUT entry, and each CLUT entry contains a CLUT alpha blend value ("Sample-to-pixel calculation units 170A-D may also be configured with one or more of the following features: color look-up using pseudo color tables ...", column 14, line 7-10).

10. As per claim 10, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 1, supra, and Deering further discloses the alpha blend values are used to form alpha portions of pixels having a color portion and an alpha portion (Figure 6 162 since alpha value is one element of sample values).

11. As per claim 12, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 1, supra, and Deering further discloses the graphical

element has a plurality of foreground colors, which are filtered using a low pass filter (""Example values for samples 290-296 are illustrated in boxes 300-308. In this example, each sample comprises red, green, blue and alpha values, in addition to the sample's positional data", column 23, line 24-27).

12. As per claim 13, Deering and Harrington demonstrated all elements as applied in the rejection of dependent claim 12, supra, and Deering further discloses the filtered plurality of foreground colors are used as color portions of pixels having a color portion and an alpha portion (Figure 6 162 since alpha value is one element of sample values).

13. As per claim 23, Deering discloses a graphics display system for displaying a graphical element comprising:

a low pass filter for filtering the graphical element to generate multi-level values, one multi-level value per each pixel, at an intended final display resolution ("the blending weight of a fragment ("Sample-to-pixel calculation units 170A-D are configured to read selected samples from sample memories 160A-N and then perform a convolution (e.g., a filtering and weighting function or a low pass filter) on the samples to generate the output pixel values which are output to DACs 178A-B. The sample-to-pixel calculation units 170A-D may be programmable to allow them to perform different filter functions at different times, depending upon the type of output desired", column 13, line 53-61);

a display buffer for storing the multi-level values (Figure 6 162); and

a display engine for compositing the graphical element with at least one graphics image using the multi-level values as alpha bled valuesFigure 6 112),

wherein generation of the multi-level values do not depend on alpha blend values that existed prior to filtering (since the alpha values generated is the result of sampling, it is different from the alpha blend values existed prior filtering), and

wherein a resolution of the multi-level values are reduced by at least one bit prior to using them as the alpha blend values ("By calculating more samples than pixels (i.e., super-sampling), a more detailed image is calculated than can be displayed on the display device. For example, a graphics system may calculate four samples for each pixel to be output to the display device. After the samples are calculated, they are then combined or filtered to form the pixels that are stored in the frame buffer and then conveyed to the display device", column 3, line 20-27).

Deering discloses a method of displaying a graphical element. It is noted Deering does not explicitly disclose reducing "a gray level of the multi-level values by at least one bit prior to using them as alpha blend values", however, this is known in the art as taught by Harrington et al., hereinafter Harrington. Harrington discloses a method of anti-aliasing in which "1) expanding gray mask M to a bitmap m ... 6) filtering those pixels in B and returning the filtered pixels to A" (column 3, line 46-55).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Harrington to Deering because Deering discloses a method of displaying a graphical element and Harrington discloses the resolution of the gray level mask can be increased, filtered, then reduced in order to achieve anti-aliasing effect.

14. As per claim 25, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 23, supra, and Deering further discloses the graphical element is initially rendered as a higher resolution than the intended final display resolution (known as "super-sampling", see abstract).

15. As per claim 26, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 23, supra, and Deering further discloses wherein the low pass filter is a box filter (column 23, line 47).

16. As per claim 29, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 23, supra, and Deering further discloses the alpha blend values include CLUT indexes, each CLUT index is associated with a CLUT entry, and each CLUT entry contains a CLUT alpha blend value ("Sample-to-pixel calculation units 170A-D may also be configured with one or more of the following features: color look-up using pseudo color tables ...", column 14, line 7-10).

17. As per claim 30, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 23, supra, and Deering further discloses the alpha blend values are used to form alpha portions of pixels having a color portion and an alpha portion (Figure 6 162 since alpha value is one element of sample values).

17. As per claim 40, Deering discloses a graphics display system for displaying a graphical element comprising:

a low pass filter for filtering the graphical element to generate multi-level values, one multi-level value per each pixel, at an intended final display resolution ("the blending weight of a fragment ("Sample-to-pixel calculation units 170A-D are configured

to read selected samples from sample memories 160A-N and then perform a convolution (e.g., a filtering and weighting function or a low pass filter) on the samples to generate the output pixel values which are output to DACs 178A-B. The sample-to-pixel calculation units 170A-D may be programmable to allow them to perform different filter functions at different times, depending upon the type of output desired", column 13, line 53-61);

a display buffer for storing the multi-level values (Figure 6 162); and

a display engine for compositing the graphical element with at least one graphics image using the multi-level values as alpha blend values (Figure 6 112),

wherein an outline of the graphical element, including all colors other than background color, is filtered using the low pass filter, wherein the graphical element has a plurality of foreground colors ("this soft edge alpha key overlay is then output in a digital format to an external mixing unit which blends the overlay with a live video feed", column 32, line 42-44, where the overlay is the foreground colors).

Wherein the filtered outline is used as the alpha per pixel value (the generated overlay has a "soft edge alpha key", column 32, line 30-31).

Deering discloses a method of displaying a graphical element. It is noted Deering does not explicitly disclose reducing "a gray level of the multi-level values is reduced by at least one bit prior to using then as the alpha blend values", however, this is known in the art as taught by Harrington et al., hereinafter Harrington. Harrington discloses a method of anti-aliasing in which "1) expanding gray mask M to a bitmap m ... 6) filtering those pixels in B and returning the filtered pixels to A" (column 3, line 46-55).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Harrington to Deering because Deering discloses a method of displaying a graphical element and Harrington discloses the resolution of the gray level mask can be increased, filtered, then reduced in order to achieve anti-aliasing effect.

As for the filtered outline is used as a choice of an alpha value per CLUT entry in a CLUT format, since the method of using CLUT for blending color is notoriously well known in the art, therefore would have been obvious to use it for faster color blending.

18. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering (6,466,206) in view of Harrington, and further in view of Foley et al. (Computer Graphics: Principles and Practice).

As per claims 2-5, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 1, supra, and Deering further discloses initially rendered at a higher resolution than the intended final display resolution (known as super-sampling).

Deering and Harrington disclose a method of generating soft-edge alpha key. It is noted that Deering and Harrington do not explicitly disclose the graphical element is "initially rendered at four times the resolution of the intended final display resolution in a horizontal axis", and "is initially rendered at four times the resolution of the intended final display resolution in a vertical axis", however, this is known in the art as taught by Foley et al., hereinafter, Foley. Foley discloses that in order to prevent damage caused by an

in inadequate initial sampling rate "a rule of thumb is that supersampling four times in each of x and y often will be satisfactory", page 643, line 4-5.

Thus, It would have been obvious to one of ordinary in the art at the time the invention was made to incorporate the teaching of Foley into Deering and Harrington in order to prevent image damage caused by inadequate sampling.

19. Claims 7-8 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering (6,466,206), and further in view of Yoon (5,039,983).

As per claims 7 and 27, Deering discloses a method or system of displaying a graphical element comprising the steps of:

filtering the graphical element with a low pass filter to generate a multi-level value per pixel at an intended final display resolution ("Sample-to-pixel calculation units 170A-D are configured to read selected samples from sample memories 160A-N and then perform a convolution (e.g., a filtering and weighting function or a low pass filter) on the samples to generate the output pixel values which are output to DACs 178A-B. The sample-to-pixel calculation units 170A-D may be programmable to allow them to perform different filter functions at different times, depending upon the type of output desired", column 13, line 53-61); and

using the multi-level values as alpha blend values for the graphical element in a subsequent compositing stage ("by sample-to-pixel calculation units 170A-D. An alpha value may be generated that can be used to blend the current sample into the sample buffer", column 33, line 20-22).

Deering discloses a method of generating soft-edge alpha key. It is noted that Deering does not explicitly disclose "storing the multi-level values in a display buffer", however, since Deering discloses the filtered pixel values are stored in a traditional buffer (column 3, line 35-37), it would have been obvious to one of ordinary skill in the art to know the multi-level values could be stored in a display buffer in order to prepare the data for display.

Deering discloses a method of generating soft-edge alpha key. It is noted that Deering does not explicitly disclose "wherein the graphical element includes text, and the display buffer is defined to have a constant foreground color that is consistent with a desired foreground color of the text", however, this is known in the art as taught by Yoon. Yoon discloses a method of displaying image in which "color video signal is applied to the video output section 33 through the buffer 32. Therefore only one color is displayed on a monitor in accordance with the text mode, by which is meant only one foreground color and only background color", column 1, line 27-31).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yoon into Deering because Deering discloses a method of generating soft-edge alpha key and Yoon discloses the buffer contains color consistent with the foreground color of the text in order to provide appropriate color image.

20. As per claims 8 and 28, Deering disclose a method or system of displaying a graphical element comprising the steps of:

filtering the graphical element with a low pass filter to generate a multi-level value per pixel at an intended final display resolution ("Sample-to-pixel calculation units 170A-D are configured to read selected samples from sample memories 160A-N and then perform a convolution (e.g., a filtering and weighting function or a low pass filter) on the samples to generate the output pixel values which are output to DACs 178A-B. The sample-to-pixel calculation units 170A-D may be programmable to allow them to perform different filter functions at different times, depending upon the type of output desired", column 13, line 53-61); and

using the multi-level values as alpha blend values for the graphical element in a subsequent compositing stage ("by sample-to-pixel calculation units 170A-D. An alpha value may be generated that can be used to blend the current sample into the sample buffer", column 33, line 20-22).

As for "storing the multi-level values in a display buffer", since Deering discloses the filtered pixel values are stored in a traditional buffer (column 3, line 35-37), it would have been obvious to one of ordinary skill in the art to know the method on order to prepare the data for display.

Deering discloses a method of generating soft-edge alpha key. It is noted that Deering does not explicitly disclose "wherein the graphical element includes graphics, and the display buffer is defined to have a constant foreground color that is consistent with a desired foreground color of the text", however, this is known in the art as taught by Yoon. Yoon discloses a method of displaying image in which "color video signal is applied to the video output section 33 through the buffer 32. Therefore only one color is

displayed on a monitor in accordance with the text mode, by which is meant only one foreground color and only background color", column 1, line 27-31).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Yoon into Deering because Deering discloses a method of generating soft-edge alpha key and Yoon discloses the buffer contains color consistent with the foreground color of the text in order to provide appropriate color image.

21. Claims 17-18 and 32-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering (6,466,206) in view of Harrington, and further in view of Law (6,133,901).

As per claims 17 and 18, Deering and Harrington demonstrated all elements as applied in the rejection of independent claim 1, supra.

Deering and Harrington disclose a method of generating soft-edge alpha key. It is noted that Deering and Harrington do not explicitly disclose an outline of the graphical element, including all colors other than background color, is filtered using the low pass filter, wherein the graphical element has a plurality of foreground colors and wherein the filtered outline is used as an alpha per pixel value, however, this is known in the art as taught by Law. Low discloses a method of anti-aliasing in which "This integration yields a value which corresponds to the blending weight for the particular fragment. By blending the color of this fragment into the existing color of the pixel (e.g., stored in frame buffer 209), the fragment is antialiased" (column 8, line 23-27, where the fragment color is foreground color).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Law into Deering and Harrington because Deering and Harrington disclose a method of generating soft-edge alpha key and Law teaches the graphical element has a plurality of foreground colors and wherein the filtered outline is used as an alpha per pixel value in order to smooth the edge.

22. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deering (6,466,206) in view of Harrington, and further in view of Carlsen et al. (6,466,210).

As per claim 21, Deering discloses a method of displaying a graphical element comprising the steps of:

filtering the graphical element with a low pass filter to generate a multi-level value per pixel at an intended final display resolution ("Sample-to-pixel calculation units 170A-D are configured to read selected samples from sample memories 160A-N and then perform a convolution (e.g., a filtering and weighting function or a low pass filter) on the samples to generate the output pixel values which are output to DACs 178A-B. The sample-to-pixel calculation units 170A-D may be programmable to allow them to perform different filter functions at different times, depending upon the type of output desired", column 13, line 53-61);

using the multi-level values as alpha blend values for the graphical element in a subsequent compositing stage ("by sample-to-pixel calculation units 170A-D. An alpha value may be generated that can be used to blend the current sample into the sample buffer", column 33, line 20-22).

Deering discloses a method of displaying a graphical element. It is noted Deering does not explicitly disclose reducing "a gray level of the multi-level values by at least one bit prior to using them as alpha blend values", however, this is known in the art as taught by Harrington et al., hereinafter Harrington. Harrington discloses a method of anti-aliasing in which "1) expanding gray mask M to a bitmap m ... 6) filtering those pixels in B and returning the filtered pixels to A" (column 3, line 46-55).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Harrington to Deering because Deering discloses a method of displaying a graphical element and Harrington discloses the resolution of the gray level mask can be increased, filtered, then reduced in order to achieve anti-aliasing effect.

Deering and Harrington disclose a method of generating soft-edge alpha key. It is noted that Deering and Harrington do not explicitly disclose "wherein the multi-level values are written into a display buffer where the multi-level values are used as alpha blend values when contents of the display buffer are composited with other graphics and video games, and wherein the step of using the multi-level values as the alpha blend values for the graphical element in a subsequent compositing stage comprising the display buffer with other graphics and video contents while blending the display buffer with all layers behind it using alpha per pixel values", however, this is known in the art as taught by Carlsen et al., hereinafter Carlsen. Carlsen discloses a method of blending multi-layer image where blending values are used to blend images (column 8, line 5-16, where transparency and opacity values are used) and two layers are

combined into a single layer and to be combined with another layer (column 7, line 33-42).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Carlsen into Deering and Harrington because Deering and Harrington disclose a method of generating soft-edge alpha key and Carlsen discloses alpha blending values can be combined and used in subsequent blending in order to combine images.

23. Claims 22 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering (6,466,206) in view of Carlsen et al. (6,466,210) and further in view of Kirchury (6,057,850).

As per claim 22, Deering discloses a method of displaying a graphical element comprising the steps of:

filtering the graphical element with a low pass filter to generate a multi-level value per pixel at an intended final display resolution ("Sample-to-pixel calculation units 170A-D are configured to read selected samples from sample memories 160A-N and then perform a convolution (e.g., a filtering and weighting function or a low pass filter) on the samples to generate the output pixel values which are output to DACs 178A-B. The sample-to-pixel calculation units 170A-D may be programmable to allow them to perform different filter functions at different times, depending upon the type of output desired", column 13, line 53-61);

using the multi-level values as alpha blend values for the graphical element in a subsequent compositing stage ("by sample-to-pixel calculation units 170A-D. An alpha

value may be generated that can be used to blend the current sample into the sample buffer", column 33, line 20-22).

Deering discloses a method of generating soft-edge alpha key. It is noted that Deering does not explicitly disclose "wherein the multi-level values are written into a display buffer where the multi-level values are used as alpha blend values when contents of the display buffer are composited with other graphics and video games, and wherein the step of using the multi-level values as the alpha blend values for the graphical element in a subsequent compositing stage comprising the display buffer with other graphics and video contents while blending the display buffer with all layers behind it using alpha per pixel values", however, this is known in the art as taught by Carlsen et al., hereinafter Carlsen. Carlsen discloses a method of blending multi-layer image where blending values are used to blend images (column 8, line 5-16, where transparency and opacity values are used) and two layers are combined into a single layer and to be combined with another layer (column 7, line 33-42).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Carlsen into Deering because Deering discloses a method of generating soft-edge alpha key and Carlsen discloses alpha blending values can be combined and used in subsequent blending in order to combine images.

Deering and Carlsen disclose a method of generating soft-edge alpha key. It is noted that Deering and Carlsen do not explicitly disclose "wherein opacity of the graphical element may be varied by specifying the alpha value of the display buffer",

however, this is known in the art as taught by Kichury. Kirchury discloses a method of rendering computer graphics in which "alpha color values (hereinafter RGBA) at each object vertex in the present rendering pass are blended with the corresponding RGBA values that are specified in the frame buffer from the previous pass" (column 7, line 2-5).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Kirchury into Deering and Carlsen because Deering and Carlsen disclose a method of generating soft-edge alpha key and Kirchury discloses opacity of the graphical element may be varied by specifying the alpha value of the display buffer in order to create realistic graphics.

24. As per claim 41, Deering discloses a graphics display system for displaying a graphical element comprising:

a low pass filter for filtering the graphical element to generate multi-level values, one multi-level value per each pixel, at an intended final display resolution ("the blending weight of a fragment ("Sample-to-pixel calculation units 170A-D are configured to read selected samples from sample memories 160A-N and then perform a convolution (e.g., a filtering and weighting function or a low pass filter) on the samples to generate the output pixel values which are output to DACs 178A-B. The sample-to-pixel calculation units 170A-D may be programmable to allow them to perform different filter functions at different times, depending upon the type of output desired", column 13, line 53-61);

a display buffer for storing the multi-level values (Figure 6 162); and

a display engine for compositing the graphical element with at least one graphics image using the multi-level values as alpha blend values (Figure 6 112).

Deering and Carlsen disclose a method of generating soft-edge alpha key. It is noted that Deering and Carlsen do not explicitly disclose “wherein opacity of the graphical element may be varied by specifying the alpha value of the display buffer”, however, this is known in the art as taught by Kichury. Kirchury discloses a method of rendering computer graphics in which “alpha color values (hereinafter RGBA) at each object vertex in the present rendering pass are blended with the corresponding RGBA values that are specified in the frame buffer from the previous pass” (column 7, line 2-5).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Kirchury into Deering and Carlsen because Deering and Carlsen disclose a method of generating soft-edge alpha key and Kirchury discloses opacity of the graphical element may be varied by specifying the alpha value of the display buffer in order to create realistic graphics.

25. As per claim 32, Deering demonstrated all elements as applied in the rejection of independent claim 23, supra.

Deering discloses a method of generating soft-edge alpha key. It is noted that Deering does not explicitly disclose the graphical element has a plurality of foreground colors, which are filtered using a low pass filter, however, this is known in the art as taught by Law. Low discloses a method of anti-aliasing in which “This integration yields a value which corresponds to the blending weight for the particular fragment. By

blending the color of this fragment into the existing color of the pixel (e.g., stored in frame buffer 209), the fragment is antialiased" (column 8, line 23-27, where the fragment color is foreground color).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Law into Deering because discloses a method of generating soft-edge alpha key and Law teaches the graphical element has a plurality of foreground colors and wherein the filtered outline is used as an alpha per pixel value in order to smooth the edge.

26. As per claim 33, Deering and Law demonstrated all elements as applied in the rejection of dependent claim 32, supra.

Deering discloses a method of generating soft-edge alpha key. It is noted that Deering does not explicitly disclose the colors are used as color portions of pixels having a color portion and an alpha portion, however, since it is notoriously well known that the color is represented in RGBA format (Official Notice), it would have been obvious to one of ordinary skill in the art to know the method to represent the data as a color portion and an alpha portion in order to overlay multiple data.

27. As per claim 34, Deering and Law demonstrated all elements as applied in the rejection of dependent claim 33, supra.

Deering discloses a method of generating soft-edge alpha key. It is noted that Deering does not explicitly disclose the pixels having a color portion and an alpha portion are in an alphaRGB format, however, since it is notoriously well known that the color of pixels are represented in alphaRGB format (Official Notice), it would have been

obvious to one of ordinary skill in the art to know the format to represent the color data in order to overlay multiple data.

28. As per claim 35, Deering and Law demonstrated all elements as applied in the rejection of dependent claim 33, supra.

As for the pixels having a color portion and an alpha portion are in an alphaYUV format, the representation is notoriously well known in the art and would have been obvious to used it at the time the invention was made in order to represent an alpha blending value.

29. As per claim 36, Deering and Law demonstrated all elements as applied in the rejection of dependent claim 32, supra.

As for the filtered plurality of foreground colors are used as color choices in a CLUT format, since the method of using CLUT for blending color is notoriously well known in the art, therefore would have been obvious to use it at the time the invention was for faster color blending.

30. As per claims 37 and 38, Deering demonstrated all elements as applied in the rejection of independent claim 23, supra.

Deering discloses a method of generating soft-edge alpha key. It is noted that Deering does not explicitly disclose the graphical element has a plurality of foreground colors, which are filtered using a low pass filter, however, this is known in the art as taught by Law. Low discloses a method of anti-aliasing in which "This integration yields a value which corresponds to the blending weight for the particular fragment. By blending the color of this fragment into the existing color of the pixel (e.g., stored in

frame buffer 209), the fragment is antialiased" (column 8, line 23-27, where the fragment color is foreground color).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Law into Deering because discloses a method of generating soft-edge alpha key and Law teaches the graphical element has a plurality of foreground colors and wherein the filtered outline is used as an alpha per pixel value in order to smooth the edge.

31. As per claim 39, Deering demonstrated all elements as applied in the rejection of dependent claim 38, supra.

As for the filtered outline is used as the alpha per pixel value in a direct color format, the direct color format including an alphaRGB format, the format is notoriously well known in the art and would have been obvious to use it as the time of invention because it is designer's choice of a well known format.

32. Claims 11, 14-16, 19-20 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deering (6,466,206).

As per claim 11, Deering demonstrated all elements as applied in the rejection of dependent claim 10, supra.

As for the pixels having color portions and alpha portions are in an alphaRGB (4,4,4,4) format, since the format is notoriously well known in the art, it would have been obvious to use it at the time of invention as a designer's choice of a well known format.

33. As per claim 14, Deering demonstrated all elements as applied in the rejection of dependent claim 13, supra.

As for the pixels having a color portion and an alpha portion are in an alphaRGB format, since the format is notoriously well known in the art, it would have been obvious to use it at the time of invention as a designer's choice of a well known format.

34. As per claim 15, <u>Deering</u> demonstrated all elements as applied in the rejection of dependent claim 13, supra.

As for the pixels having a color portion and an alpha portion are in an alphaYUV format, since the YUV format is an alternate color coding system in the computer graphics industry, It would have been obvious to one of ordinary in the art at the time the invention was made to also incorporate the alternate format.

35. As per claim 16, <u>Deering</u> demonstrated all elements as applied in the rejection of dependent claim 12, supra.

As for the filtered plurality of foreground colors are used as color choices in a CLUT format, since the method of using CLUT for blending color is notoriously well known in the art, therefore would have been obvious to use it for faster color blending.

36. As per claim 19, <u>Deering</u> demonstrated all elements as applied in the rejection of dependent claim 18, supra.

As for the filtered outline is used as the alpha per pixel value in a direct color format, the direct color format including an alphaRGB format, the format is notoriously well known in the art and would have been obvious to use it at the time of invention because it is a designer's choice of a well known format.

37. As per claim 20, <u>Deering</u> demonstrated all elements as applied in the rejection of dependent claim 18, supra.

As for the filtered outline is used as a choice of an alpha value per CLUT entry in a CLUT format, the method of using CLUT for blending color is notoriously well known, therefore would have been obvious to use it for faster color blending.

38. As per claim 31, Deering demonstrated all elements as applied in the rejection of dependent claim 30, supra.

As for the pixels having color portions and alpha portions are in an alphaRGB (4,4,4,4) format, the format is notoriously well known in the art and would have been obvious to use it at the time of invention because it is a designer's choice of a well known format.

Response to Arguments

39. Applicant's arguments with respect to claims 1, 7-8, 21-23, 27-28 and 40-41 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

40. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

41. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiries

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Ryan Yang** whose telephone number is **(703) 308-6133**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Michael Razavi**, can be reached at **(703) 305-4713**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 305-47000377.

Ryan Yang
May 20, 2004

JEFFERY BRIER
PRIMARY EXAMINER